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CONVENTIONAL CARDIAC RISK FACTORS ASSOCIATED WITH TRASTUZUMAB-INDUCED CARDIOTOXICITY IN BREAST CANCER: A META-ANALYSIS

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Introduction Trastuzumab reduces the risk of relapse and improves prognosis for breast cancer patients with expression of human epidermal growth factor receptor 2 (HER-2). However, it has proven to be associated with cardiotoxicity, manifest as an asymptomatic decrease in Left Ventricular Ejection Fraction (LVEF) and less often as clinical heart failure (HF). Published studies have tried to identify risk factors predisposing to cardiotoxicity but the results are not uniform. The aim of this meta-analysis is to identify the association of conventional cardiovascular risk factors with the development of Trastuzumab-induced cardiotoxicity (TIC).

Methods A literature search of PubMed was conducted to identify studies examining the association between cardiovascular risk factors and TIC as defined by clinical HF or deterioration in LVEF [Figure 1]. Data were extracted and pooled odds ratios (ORs) with 95% confidence intervals (CIs) were calculated to examine the odds of developing TIC for each of the risk factors.

Results A total of 35 studies met our criteria and were included in the analysis. Age ≥ 60 years old (OR: 2.03; 95% CI: 1.38–3.00; $p = 0.0004$), hypertension (OR: 2.01; 95% CI: 1.30–3.09; $p = 0.002$), smoking (OR: 1.33; 95% CI: 1.07–1.65; $p = 0.01$), diabetes mellitus (OR: 1.49; 95% CI: 1.22–1.81; $p < 0.0001$), known history of coronary artery disease (CAD) (OR: 3.72; 95% CI: 2.11–6.57; $p = 0.0005$) and family history of CAD (OR: 5.51; 95% CI: 1.76–17.25; $p < 0.00001$) were significantly associated with the development of TIC. However, obesity (OR: 2.47; 95% CI: 0.93–6.55; $p = 0.07$) and hyperlipidaemia (OR: 1.32, 95% CI: 0.71–2.46; $p = 0.38$) did not meet statistical significance for association with development of TIC.

Conclusion Identifying women at risk for TIC has several important potential applications. Clinicians may decide to assess LVEF more frequently for patients at highest risk for

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TIC in order to detect LV systolic dysfunction earlier. Additionally, identifying high-risk patients may play a role for recognition which individuals would obtain the most benefit from prophylactic therapy currently under investigation for preventing TIC. Finally, these risk factors could in the future form the basis of a risk prediction model for TIC.

Conflict of Interest None

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DO WE ALWAYS NEED ADVANCED IMAGING TO ASSESS MYOCARDIAL VIABILITY OR IS RESTING ECHOCARDIOGRAPHY ENOUGH IN MOST CASES?

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Background Advanced imaging is a limited resource. Resting transthoracic echocardiography (TTE) is inexpensive and widely available. If TTE identifies clear viable or non-viable myocardium, viability testing could be reserved for “grey-zone” cases, with significant resource implications.

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